General and Comparative Endocrinology

An International Journal

QP
187
G37

Editors-in-Chief

AUBREY GORBMAN

E. J. W. BARRINGTON

Published under the Auspices of the Division of Comparative Endocrinology of the American Society of Zoologists, and the European Society for Comparative Endocrinology

Volume 12

1969

ACADEMIC PRESS

New York and London

COPYRIGHT © 1969, BY ACADEMIC PRESS, INC.

ALL RIGHTS RESERVED

NO PART OF THIS VOLUME MAY BE REPRODUCED IN ANY FORM, BY PHOTOSTAT, MICROFILM, OR ANY OTHER MEANS, WITHOUT WRITTEN PERMISSION FROM THE PUBLISHERS.

CONTENTS OF VOLUME 12

Number 1, February 1969

R. Hathaway and R. E. Black. Interconversions of Estrogens and Related Developmental Effects in Sand Dollar Eggs 1

ndra Kazahn Masur. Fine Structure of the Autotransplanted Pituitary in the Red Eft, *Notophthalmus viridescens* 12

ndra Kazahn Masur and Eric Holtzman. Lysosomes and Secretory Granules in the Normal and Autotransplanted Salamander Pars Distalis . . . 33

anfred Gersch, Klaus Richter, Jörg Stürzebecher, und Bärbel Fabian. Experimentelle Untersuchungen zum Wirkungsmechanismus des Neurohormons D von *Periplaneta americana* (L.) am "biologischen Modell" der Harnblase von *Bufo bufo* (L.) 40

llen Thomsen and Arden O. Lea. Control of the Medial Neurosecretory Cells by the Corpus Allatum in *Calliphora erythrocephala* 51

Eylath and B. Eckstein. Isolation of 11-Ketotestosterone and Dehydroepiandrosterone from Ovaries of the Common Mullet, *Mugil capito* 58

J. Lucis and R. Lucis. Metabolism of C_{18} and C_{19} Steroids by Testis Tissue 63

. Morris and D. S. Islam. Histochemical Studies on the Follicles of Langerhans of the Ammocoete Larva of *Lampetra planeri* (Bloch) 72

. Morris and D. S. Islam. The Effect of Hormones and Hormone Inhibitors on Blood Sugar Regulation and the Follicles of Langerhans in Ammocoete Larvae 81

Barker Jørgensen, Per Rosenkilde, and K. G. Wingstrand. Role of the Preoptic-Neurohypophysial System in the Water Economy of the Toad *Bufo bufo* L. 91

yoichi Arai, Hideo Tajima, and Bun-Ichi Tamaoki. *In Vitro* Transformation of Steroids by the Head Kidney, the Body Kidney, and the Corpuscles of Stannius of the Rainbow Trout (*Salmo gairdneri*) 99

. R. N. Prasad and M. K. Sanyal. Effect of Sex Hormones on the Sexual Segment of Kidney and other Accessory Reproductive Organs of the Indian House Lizard *Hemidactylus flaviviridis* Ruppell 110

ovind S. Rao, Heinz Breuer, and Emil Witschi. *In Vitro* Conversion of 17α-Hydroxyprogesterone to Androstenedione by Mashed Gonads from Metamorphic Stages of *Xenopus laevis* 119

ed Hayashida and Ahmad Farooq. Ovine Gonadotrophic Hormone Injections Leading to Autoimmunity in Goats 124

nn Heffington Bunt. Fine Structure of the Pars Distalis and Interrenals of *Taricha torosa* after Administration of Metopirone (SU-4885) 134

ancy E. Henderson. Structural Similarities between the Neurohypophyses of Brook Trout and Tetrapods 148

ugusto C. Cuello and Juan H. Tramezzani. The Epiphysis Cerebri of the Weddell Seal: Its Remarkable Size and Glandular Pattern 154

otes

Sardul S. Guraya. Histochemical Observations on the Corpora Atretica of Amphibian Ovary 165

E. Heinicke and A. M. Pérks. The Magnesium Potentiation of the Oxytocic Activity of Pituitary Extracts from an Elasmobranch (*Raia rhina*) . . 16
R. K. Tcholakian and K. B. Eik-Nes. Conversion of Progesterone to 11-Deoxycorticosterone by the Androgenic Gland of the Blue Crab (*Callinectes sapidus* Rathbun) 17
D. G. Butler, E. M. Donaldson, and W. C. Clarke. Physiological Evidence for a Pituitary-Adrenocortical Feedback Mechanism in the Eel (*Anguilla rostrata*) 17
A. V. Schally, Z. Itoh, W. H. Carter, M. Saito, S. Sawano, A. Arimura, and C. Y. Bowers. Effect of Luteinizing Hormone-Releasing Factor (LRF) on Plasma LH Levels in Nutria (*Myocastor coypus*) 17
A. Peyrot, C. Vellano, and V. Mazzi. Evidence for Protracted Prolactin Production by the Autografted Pituitary Gland in Hypophysectomized Adult Male Newt, *Triturus cristatus carnifex* Laur 17
Announcement 18

Number 2, April 1969

M. Goffart, M. Lamarie, J. Closon, and R. Winand. La Fonction Thyroidienne Chez I'Unau (*Cholowpus hoffmanni* Peters) 18
Lis Olesen Larsen. Effects of Hypophysectomy before and during Sexual Maturation in the Cyclostome, *Lampetra fluviatilis* (L.) Gray 20
Allen W. Schuetz. Chemical Properties and Physiological Actions of a Starfish Radial Nerve Factor and Ovarian Factor 20
D. R. Idler, G. B. Sanalang, and A. Kanazawa. Steroid Desmolase in Gonads of Marine Invertebrate, *Placopecten magellanicus* Gmelin 22
Mona Castel and Mordechai Abraham. Effects of a Dry Diet on the Hypothalamic Neurohypophyseal Neurosecretory System in Spiny Mice as Compared to the Albino Rat and Mouse 23
David B. King. Effects of Hypophysectomy of Young Cockerels, with Particular Reference to Body Growth, Liver Weight and Liver Glycogen Level . . . 24
John P. Wiebe. Steroid Dehydrogenases and Steroids in Gonads of the Seaperch *Cymatogaster aggregata* Gibbons 25
John P. Wiebe. Endocrine Controls of Spermatogenesis and Oogenesis in the Viviparous Seaperch *Cymatogaster aggregata* Gibbons 26
Roger A. McNabb. The Effects of Thyroxine on Glycogen Stores and Oxygen Consumption in the Leopard Frog, *Rana pipiens* 27
Albert H. Meier, John T. Burns, and Jerry W. Dusseau. Seasonal Variations in the Diurnal Rhythm of the Pituitary Prolactin Content in the White-Throated Sparrow, *Zonotrichia albicollis* 28
Stewart A. Middler, Charles R. Kleeman, Eleanor Edwards, and Dorothy Brody. Effect of Adenohypophysectomy on Salt and Water Metabolism of the Toad *Bufo marinus* with Studies on Hormonal Replacement 29
P. C. Laguë and A. van Tienhoven. Comparison between Chicken and Guinea Pig Thyroid with Respect to the Incorporation of ^{131}I *in Vitro* 30
Birte Hermansen and C. Barker Jorgensen. Blood Glucose in Male Toads (*Bufo bufo*): Annual Variation and Hormonal Regulation 3
Bridget I. Baker. Uptake of Uridine by Teleost Thyrotrophs *in Vitro* 3
B. P. Roy. Distribution of Neurohypophyseal Hormones in Some Elasmobranch Species 3

OPEZ. Etude Histophysiologique des Corpuscules de Stannius de *Salmo salar* L. au Cours des Diverses Etapes de Son Cycle Vital 339
. STAINER AND W. N. HOLMES. Some Evidence for the Presence of a Corticotrophin Releasing Factor (CRF) in the Duck (*Anas platyrhynchos*) . . . 350
MORDUE AND G. J. GOLDSWORTHY. The Physiological Effects of Corpus Cardiacum Extracts in Locusts 360
HIM LAHLOU AND WILBUR H. SAWYER. Electrolyte Balance in Hypophysectomized Goldfish, *Carassius auratus* L. 370
ELEINE OLIVEREAU. Données Cytologiques sur L'Adenohypophyse du Gardon, Poisson Téléostéen 378

ES

T. J. LAM AND J. F. LEATHERLAND. Effect of Prolactin on Freshwater Survival of the Marine Form (*trachurus*) of the Threespine Stickleback, *Gasterosteus aculeatus,* in the Early Winter 385
W. H. SAWYER, M. MANNING, E. HEINICKE, AND A. M. PERKS. Elasmobranch Oxytocin-like Principles: Comparisons with Synthetic Glumitocin . . . 387
T. W. REDDING, Z. ITOH, AND A. V. SCHALLY. Effect of Thyrotropin (TSH)-Releasing Factor (TRF) on Plasma TSH Levels in Nutria (*Myocastor coypus*) 391
NOUNCEMENT 395

NUMBER 3, JUNE 1969

OSHI OSHIMA AND AUBREY GORBMAN. Effects of Sex Hormones on Photically Evoked Potentials in Frog Brain 397
N D. TAYLOR. The Effects of Intermedin on the Ultrastructure of Amphibian Iridophores 405
MÍN C. ITURRIZA. Further Evidences for the Blocking Effect of Catecholamines on the Secretion of Melanocyte-Stimulating Hormone in Toads . . 417
I. BAKER. The Response of Teleost Pituitary Thyrotrophs to Thyroxin *in Vitro* —a Histological Study 427
H. M. FAGERLUND AND EDWARD M. DONALDSON. The Effect of Androgens on the Distribution and Secretion of Cortisol in Gonadectomized Male Sockeye Salmon (*Oncorhynchus nerka*) 438
M CHRISTIAN NORMANN AND HANNE DUVE. Experimentally Induced Release of a Neurohormone Influencing Hemolymph Trehalose Level in *Calliphora erythrocephala* (Diptera) 449
SSEL J. REITER. Pineal Function in Long Term Blinded Male and Female Golden Hamsters 460
INE R. HAGADORN. Hormonal Control of Spermatogenesis in *Hirudo medicinalis* II. Testicular Response to Brain Removal during the Phase of Testicular Maturity 469
UGLAS R. ROBERTSON. The Ultimobranchial Body of *Rana pipiens* VIII. Effects of Extirpation upon Calcium Distribution and Bone Cell Types . . . 479
MIO YAMAZAKI AND EDWARD M. DONALDSON. Involvement of Gonadotropin and Steroid Hormones in the Spermiation of the Goldfish (*Carassius auratus*) . . 491
HARD E. JONES. Epidermal Hyperplasia in the Incubation Patch of the California Quail, *Lophortyx californicus,* in Relation to Pituitary Prolactin Content 498
G. BUTLER, W. C. CLARKE, E. M. DONALDSON, AND R. W. LANGFORD. Surgical

Adrenalectomy of a Teleost Fish (*Anguilla rostrata* LeSueur): Effect on Plasma Cortisol and Tissue Electrolyte and Carbohydrate Concentrations .
A. Krishnakumaran and H. A. Schneiderman. Induction of Molting in Crustacea by an Insect Molting Hormone . . . . . .
E. W. Emmart. The Localization of Endogenous "Prolactin" in the Pituitary Gland of the Goldfish, *Carassius auratus*, Linnaeus . . . . . .
Paul Licht and Charles S. Nicoll. Localization of Prolactin in the Reptilian Par Distalis . . . . . .
G. L. Dryden, T. R. Bauman, C. H. Conaway, and R. R. Anderson. Thyroid Hormone Secretion Rate and Biological Half-Life ($t_{1/2}$) of L-Thyroxine-^{131}I in the Musk Shrew (*Suncus murinus*) . . . . . .
Stefano Bianchi. On the Neurosecretory System of *Cerebratulus marginatus* (Heteronemertini) . . . . . .
Hideo Tajima, Ryoichi Arai, Bun-Ichi Tamaoki, and Kin-Ichiro Hanaoka. *In Vitro* Steroidogenesis in Testicular Homogenates of the Japanese Newt, *Cynops pyrrhogaster* (Boie) . . . . . .
T. P. Singh. Observations on the Effect of Gonadal and Adrenal Cortical Steroids upon Thyroid Gland in Hypophysectomized Catfish, *Mystus vittatus* Bloch . . . . . .
Timo Nevalainen. Fine Structure of the Parathyroid Gland of the Laying Hen *Gallus domesticus* . . . . . .
Hémayatollah Akram and J.-P. Weniger. Sécrétion d'oestrone et d'oestradiol par les gonades embryonnaires d'Oiseaux . . . . . .
K. Ranga Rao. Influence of Prolonged Adaptation to a Background upon the Chromatophorotropins and Physiological Responses of the Chromatophores in the Crab, *Ocypode macrocera* . . . . . .
Denise Scheib and Katy Haffen. Apparition et localisation des hydroxystéroide déshydrogénases (Δ_5-3β et 17β) dans les gonades de l'embryon et du poussin de la caille (*Coturnix coturnix japonica*). Etude histoenzymologique et comparaisons avec le poulet (*Gallus gallus domesticus*) . . . . . .
Eiji Ohtsuka and S. S. Koide. Incorporation of Steroids into Human, Dog, and Duck Erythrocytes . . . . . .
Z. Yaron. Correlation between Spawning, Water Temperature and Thyroid Activity in *Acanthobrama terrae-sanctae* (Cyprinidae) of Lake Tiberias . .
D. R. Ferguson. The Genetic Distribution of Vasopressins in the Peccary (*Tayassu angulatus*) and Warthog (*Phacochoerus aethiopicus*) . . . . . .
Nancy B. Clark, Peter K. T. Pang, and Michael W. Dix. Parathyroid Glands and Calcium and Phosphate Regulation in the Lizard, *Anolis carolinensis* . .
S. T. H. Chan and J. G. Phillips. The Biosynthesis of Steroids by the Gonads of the Ricefield Eel *Monopterus albus* at Various Phases during Natural Sex Reversal . . . . . .
D. P. Huang, G. P. Vinson, and J. G. Phillips. The Metabolism of Pregnenolone and Progesterone by Cobra Adrenal Tissue *in Vitro* and the Effect of ACTH on Product Yield-Time Curves . . . . . .
S. W. C. Chan, G. P. Vinson, and J. G. Phillips. Pathways for the Biosynthesis of Corticosteroids from Pregnenolone by Adrenal Tissue of the Frog, *Rana rugulosa* . . . . . .
U. H. M. Fagerlund and J. R. McBride. Suppression by Dexamethasone of Interrenal Activity in Adult Sockeye Salmon (*Oncorhynchus nerka*) . . .

F. C. G. VAN DE VEERDONK. A Contribution to the Analysis of the Mechanism of MSH-Induced Dispersion in the Melanophores of *Xenopus laevis* . . 658
OUNCEMENT 661

HOR INDEX 662

ECT INDEX 664

THE PINEAL

By **Richard J. Wurtman**
Department of Nutrition and Food Science
Massachusetts Institute of Technology
Cambridge, Massachusetts

Julius Axelrod
Pharmacology Section
National Institutes of Health
Bethesda, Maryland

Douglas E. Kelly
Department of Biological Structure
School of Medicine, University of Washington
Seattle, Washington

Discussing the significant advances in our knowledge of the structure and the functions of the pineal organ, this book places special emphasis on two kinds of pineal systems: the pineal glands of mammals, and the photoreceptive pineals of certain lower vertebrates. Areas of discussion include:

- Anatomy
- Biochemistry
- Pharmacology
- Physiology
- The Human Pineal In Health And Disease
- Pineal Biologic Rhythms

Zoologists, biologists, anatomists, biochemists, pharmacologists, physiologists, endocrinologists, and neurologists will find this unique work invaluable.

1968, 200 pp., $11.50

AP 2260

Academic Press
NEW YORK AND LONDON
111 FIFTH AVENUE, NEW YORK, N.Y. 10003
BERKELEY SQUARE HOUSE, LONDON W.1